The Crucial Role of Pricing in the Reform of Road Finance

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July 30 2002

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Road Finance at a Crossroads

- The current method of road finance
  - Registration/license fees
  - "Flat rate" gasoline, diesel fuel taxes and bridge tolls
- Problems with this method
  - Obsolescence caused by fuel efficient vehicles, etc.
  - Flat rates cause perceived"mismatch" of who pays, who gets, and encourage "overuse" of expensive capacity
  - Result: Low popular support for rate increases, despite widespread in congestion and apparent need for capacity
- Solution
  - Pricing that varies by vehicle, time, and place of use
  - Corridor-specific finance and investment decisions
  - Simultaneously solves the problem of inefficient use and insufficient funding

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What is Value Pricing?

- Economists:
  - "The practice of setting road user charges to reflect the the *specific* costs imposed by each user"
- Real people:
  - "A way for people to buy their way out of congestion"
  - "A way to keep traffic flowing at a reasonable speed"
  - "A way to reduce auto use and increase transit use"
  - "A method for financing road improvements and other neat stuff"
  - "A way to reduce the need for new roads"

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Congestion and Value Pricing

- The Congestion Connection
  - A road's performance degrades with increased traffic
  - One more car slows down everyone, imposing delay costs
- Economic inefficiency is the result
  - Some drivers benefit less from their own travel than they impose in delay costs on others = *Inefficiency!*
- Switching to value pricing generates benefits
  - Value pricing alerts drivers to these perverse effects
  - Inefficient travel is reduced, generating economic benefits
    - Produces travel time savings
    - Slows need for spending on new road capacity
    - Provides economic incentive for ride sharing, transit

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Value Pricing and Road Finance

- Conventional road finance is a death-spiral
  - We levy a low charge on all mileage...
  - …creating excessive congestion during peak periods
  - The congestion prompts road authorities to build
  - But the charges the public will tolerate cannot cover the costs!
- Value pricing stops the death-spiral
  - Charges are levied selectively on certain vehicle-miles
  - Controls excessive congestion during peak periods
- Value pricing is fairer
  - Revenue is collected from those who burden capacity
  - The revenue to build capacity is there when it is really needed
  - Users pay for their own improvements

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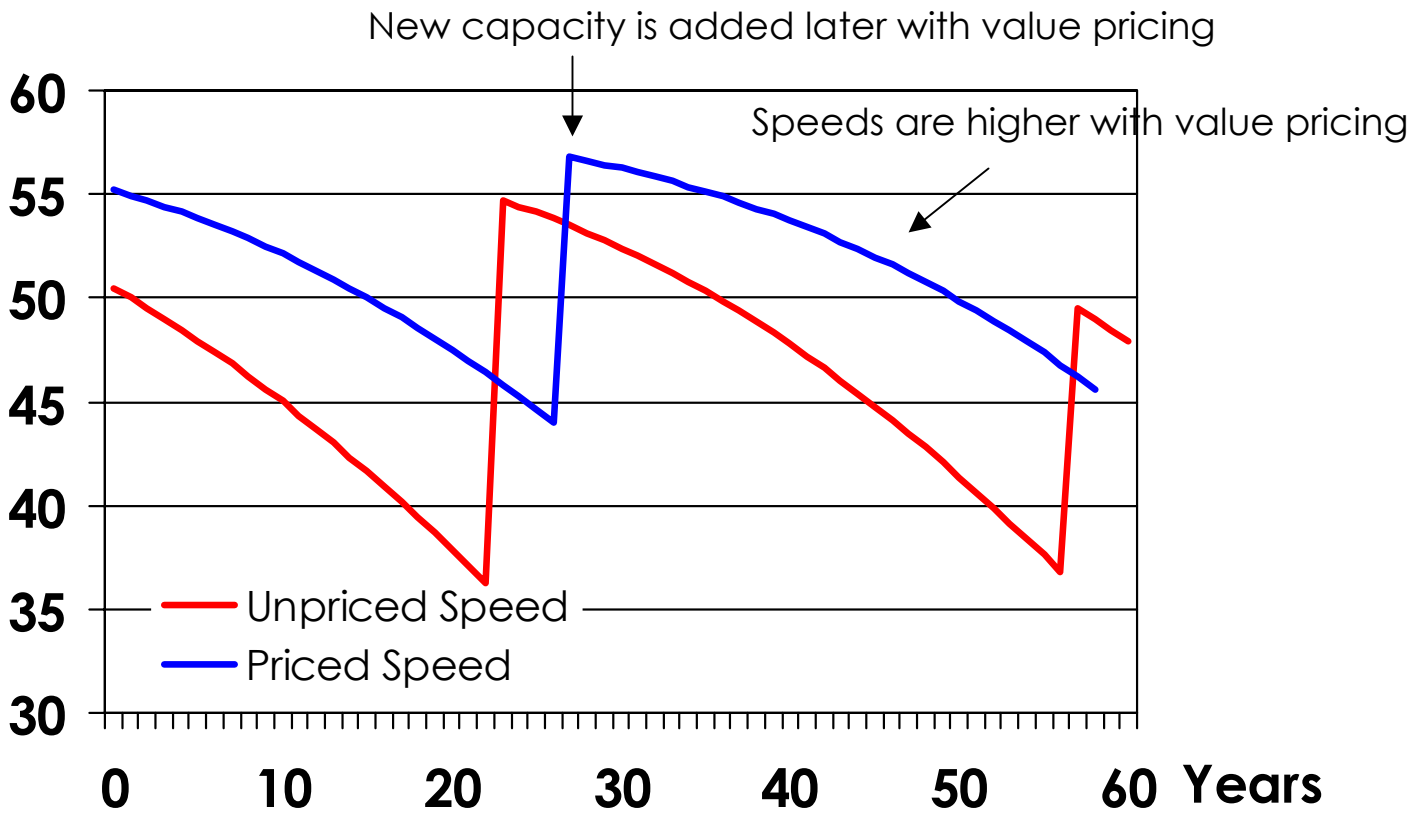
Benefits Come from Higher Speeds, and Lower Spending over Time



(Computer simulation of pricing and investment in a freeway corridor)

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How Much is at Stake?

- Value pricing can recover lost resources
  - Time lost to wasteful congestion
  - The resources lost to building too many roads, to soon, to accommodate low-value users
- Value pricing can restore fiscal balance
  - Containing congestion with pricing reduces need for capacity
  - Value pricing levies are sufficient to finance expansions
- Value pricing could revitalize central locations
  - Discourages long-distance, low-occupancy travel
  - Improves transit's financial viability

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What Would the Fees Be?

- Fees would vary significantly
  - By facility (some types of facilities congest more than others)
  - By time of day (I.e, varying congestion levels)
  - By vehicle weight, size and performance (different wear-and-tear burdens and effects on capacity)
- Typical fee ranges
  - Peak auto fees would be higher than today during congested periods (7 to 60 cents/VMT, vs. 2 to 3 cents/VMT today)
  - But off-peak fees would be ***lower*** than they are today (mostly zero)
  - So ***average*** fees per VMT would not change radically from today
  - The benefits of pricing come from the variable pricing ***pattern***

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What Would the Fees Be?(cont)

Efficient vs. Current Fees (Oregon State System, in Cents per Mile)

Vehicle Weight Class (lb.)	Annual VMT (b.)	Wear and Tear + Admin	Congestion Fee Range		Total Efficient Fee Range		*Current Fees*
0-8000	31,999	1.1	1.0	2.0	2.1	3.1	*2.1*
8001-26000	807	2.3	1.1	2.1	3.4	4.4	*4.1*
26001-46000	328	5.5	4.9	9.7	10.3	15.2	*8.3*
46001-54000	117	7.0	4.0	8.0	11.0	15.0	*10.7*
54001-78000	78	8.4	3.8	7.5	12.2	15.9	*13.5*
78001-80000	1,160	10.8	2.0	3.9	12.7	14.7	*17.4*
80001-104000	225	12.1	2.6	5.2	14.7	17.3	*17.7*
104001-105500	205	12.8	1.5	3.1	14.3	15.8	*17.8*
105501- up	2	53.4	2.1	4.2	55.5	57.6	*39.2*
	34,920	1.7	1.1	2.2	2.7	3.8	2.9

Source: ECONorthwest from Oregon HCAS 2000

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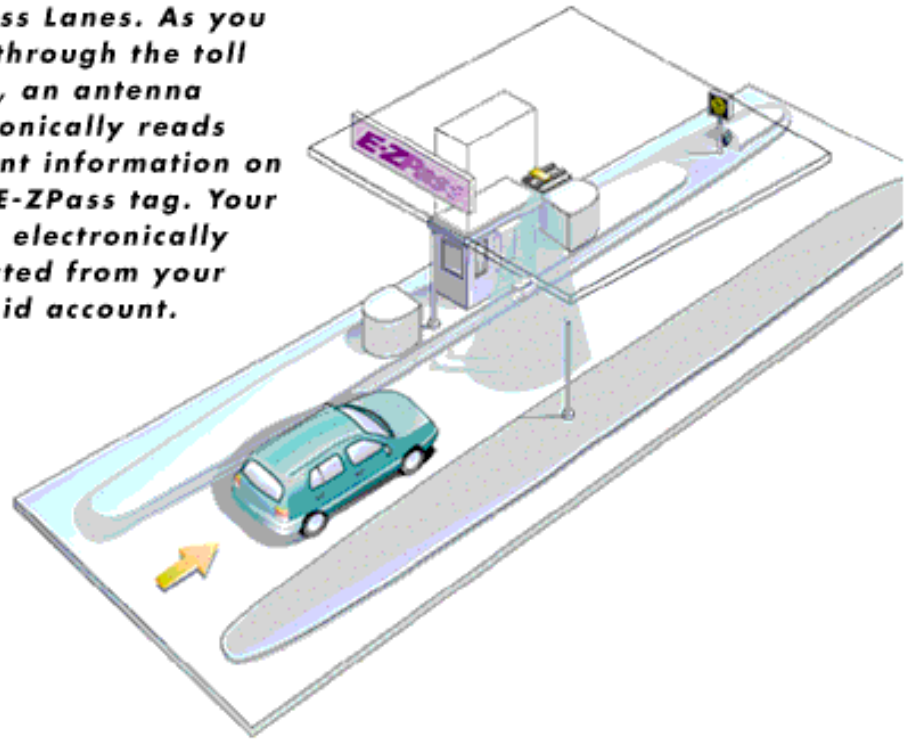
What Constitutes Value Pricing?

- The Gold Standard: Ubiquitous, efficient pricing
  - Cost-based, varies by load, vehicle type, facility, VMT
- The Silver Standard: Selective, efficient pricing
  - Only certain facilities or vehicle types are priced
  - Losses from diversion and unpriced travel
- The Bronze Standard: Semi-efficient pricing
  - Parking charges, flat VMT fees, cordon pricing
  - Relatively insensitive to facility type and load
- The Tin Standard: Indirect charges
  - Registration fees, utility fees, SDCs, ramp metering
  - Poor match to actual costs, conditions

Getting there…

- Transponder and Gantry systems like EZ-Pass are most widespread

With E-ZPass, paying tolls is convenient. Just use the dedicated E-ZPass Lanes. As you pass through the toll plaza, an antenna electronically reads account information on your E-ZPass tag. Your toll is electronically deducted from your prepaid account.



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In-Vehicle Metering

- GPS-linked meter tracks location, debits smart card, and displays travel costs
- Maintains privacy. Only total revenue by road segment is reported to authorities.
- Issues of tamper-proofing, downloading data to be resolved

Danish example ➡

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Revenue Neutrality

- Revenue neutrality aides the transition
  - The Oregon simulations suggest that a new system need not be an additional system
  - Political feasibility is increased if system is used to phase out old finance mechanisms
  - Some capacity "needs" may disappear with pricing
- The Dutch experience is a good example
  - Dutch are phasing out vehicle sales taxes, fuel excise taxes, and other mechanims
  - Replacing with VMT-charge technology known as the ***MobiMeter***
    - The Netherlands is to introduce a system of road use charges, varying per vehicle according to weight, fuel consumption and distance travelled. The total of taxes levied on all road-users together will remain unchanged but the distribution will alter. The government's revenue will not increase. Those who drive more will pay more, and those who drive little will pay less. The motor vehicle tax, a quarter of the purchase tax on passenger cars and motorcycles and the Eurovignet for heavy goods vehicles will lapse. A proportion of the fuel excise will also be included in the kilometre-charge. Provisional calculations indicate that the transition point for passenger vehicles will be around 18,000 kilometres a year. The effects for company cars are to be examined in more detail. The system is expected to be introduced from 2004 onwards by means of the phased installation of 'mobimeters'.
    - <http://www.minvenw.nl/cend/dco/home/data/international/gb/eng1201.html>

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The Final Frontiers

- Value pricing has finally caught on
  - Value pricing has stronger foundations than other options
  - The benefits are being demonstrated unambiguously
    - There are functioning projects in several states, countries
    - There are experiments underway and others in planning
- No real, technological obstacles
  - A real opportunity for a hi-tech region
  - Symbiotic w. vehicle technology (in-vehicle GPS, etc.)
- The problem: public perception
  - Make public aware of the user benefits of value pricing
  - Make policy makers aware of the superior fiscal and traffic management results

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